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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,975	08/02/2006	Edward James Morton	CXR102.ORD	4378

29484 7590 07/01/2008

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EXAMINER	
YUN, JURIE	
ART UNIT	PAPER NUMBER
2882	

MAIL DATE	DELIVERY MODE
07/01/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/554,975	MORTON ET AL.	
	Examiner	Art Unit	
	Jurie Yun	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-9,11,13-22,24-26,28-37 and 54-60* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-9,11,13-22,24-26,28-37 and 54-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/21/08 & 3/26/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed 3/21/08 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-9, 11, 29, 30, and 34-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Brettschneider (USPN 5,259,014).

4. With respect to claim 1, Brettschneider discloses an electron source for an X-ray scanner comprising at least one electron emitter (31) in a first plane; a plurality of extraction elements (32) in a second plane, wherein the first plane and second plane are substantially parallel and separated by a contiguous space, wherein said extraction elements are substantially perpendicular to the at least one electron emitter, and wherein a space between two adjacent extraction elements and said at least one electron emitter define a source region; and a controller that applies an electrical potential to certain of said plurality of extraction elements wherein said application of the electrical potential causes electrons to be moved from a first source region to a second source region (column 2, lines 39+).

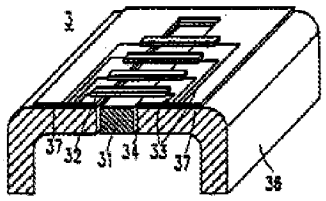

FIG.2

5. With respect to claim 3, Brettschneider discloses the electron emitter (31) comprises an elongate emitter member (column 2, line 44).

6. With respect to claim 4, Brettschneider discloses the controller is arranged to connect each of the plurality of extraction elements to either an extracting electrical potential which is positive with respect to the electron emitter or an inhibiting electrical potential which is negative with respect to the electron emitter (column 2, lines 39+).

7. With respect to claim 5, Brettschneider discloses the controller is arranged to connect the extraction elements to the extracting potential successively in adjacent pairs so as to direct a beam of electrons between each pair of extraction elements (column 1, lines 24+).

8. With respect to claims 6-8, Brettschneider discloses each of the extraction elements is connected to the same electrical potential as either of the extraction elements which are adjacent to it; the controller connects the extraction elements to either side of an adjacent pair to the inhibiting potential while each of said adjacent pairs is connected to the extracting potential; wherein the controller connects all remaining extraction elements to the inhibiting potential while each of said adjacent pairs is connected to the extracting potential (column 1, lines 24+).

9. With respect to claim 9, Brettschneider discloses the extraction elements (32) comprise parallel elongate members.

10. With respect to claim 11, Brettschneider discloses the extraction elements (32) comprise wires (column 2, lines 59-62).

11. With respect to claim 29, Brettschneider discloses the source regions are formed on respective electron emitters which are electrically insulated from each other and the controller is arranged to vary the electric potential of the electron emitters to control said relative electric potentials (column 2, lines 39+).

12. With respect to claim 30, Brettschneider discloses the extraction elements are held at a constant potential (column 1, lines 24+).

13. With respect to claim 34, Brettschneider discloses the controller activates each of the source regions in turn (column 2, lines 39+).

14. With respect to claim 35, Brettschneider discloses the controller controls the electric potentials of the source regions and the extraction elements to extract electrons from a plurality of successive groupings of said source regions (column 2, lines 39+).

15. With respect to claims 36 and 37, Brettschneider discloses said electron source (3) and at least one anode (2) comprise an X-ray tube (1), and further comprising an elongate anode arranged such that beams of electrons produced by different extraction elements will hit different parts of the anode.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. Claims 13, 24-26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brettschneider (USPN 5,259,014) as applied to claims 1 and 4 above.

18. With respect to claim 13, Brettschneider does not specifically disclose the extraction elements are spaced from the electron emitter by a distance approximately equal to the distance between adjacent extraction elements. However, Brettschneider is capable of having the extraction elements spaced from the electron emitter by a distance approximately equal to the distance between adjacent extraction elements. It is noted that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone. See MPEP 2114. In this case, it should be recognized that the wherein clause is functional in nature and does not distinguish structurally the instant claim over the prior art. See MPEP 2114 and 2111.04.

19. With respect to claim 24, Brettschneider does not specifically disclose the extraction elements are spaced from the electron emitter such that if a group of one or more adjacent extraction elements are switched to the extracting potential, electrons will be extracted from a length of the electron emitter which is longer than the width of the source regions defined by said extraction elements. However, Brettschneider is capable of this. It is noted that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone. See MPEP 2114. In this case, it should be recognized that the wherein clause is functional in nature and does

not distinguish structurally the instant claim over the prior art. See MPEP 2114 and 2111.04.

20. With respect to claim 25, Brettschneider does not specifically disclose the extraction elements are spaced from the electron emitter by a distance which is at least substantially equal to the distance between adjacent extraction elements. However, Brettschneider is capable of this. It is noted that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone. See MPEP 2114. In this case, it should be recognized that the wherein clause is functional in nature and does not distinguish structurally the instant claim over the prior art. See MPEP 2114 and 2111.04.

21. With respect to claim 26, Brettschneider does not specifically disclose the extraction elements are spaced from the electron emitter by a distance of 5 mm. However, Brettschneider is capable of this. It is noted that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone. See MPEP 2114. In this case, it should be recognized that the wherein clause is functional in nature and does not distinguish structurally the instant claim over the prior art. See MPEP 2114 and 2111.04.

22. With respect to claim 28, Brettschneider discloses the extraction elements (32) are arranged to at least partially focus the extracted electrons into a beam.

23. Claims 14-22 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brettschneider (USPN 5,259,014) as applied to claims 1, 29, and 30 above, and further in view of Gravelle et al. (USPN 5,633,907).

24. With respect to claims 14 and 31, Brettschneider does not specifically disclose a plurality of focusing elements arranged to focus beams of electrons after they have passed the extraction elements. Gravelle et al. disclose a plurality of focusing elements (23) arranged to focus beams of electrons after they have passed the extraction elements (28 & 29). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brettschneider to have a plurality of focusing elements arranged to focus beams of electrons after they have passed the extraction elements, to ensure accurate positioning of the beam of electrons in the desired direction.

25. With respect to claim 15, Brettschneider/Gravelle et al. do not specifically disclose the focusing elements are elongate. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the focusing elements elongate, to match the configuration of the elongate extraction elements.

26. With respect to claim 16, Brettschneider/Gravelle et al. do not specifically disclose the focusing elements are parallel to the extraction elements. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the focusing elements parallel to the extraction elements, because this would be necessary for proper focusing of the beam in an elongate emitter configuration.

27. With respect to claims 17 and 18, Brettschneider as modified by Gravelle et al. discloses the focusing elements are aligned with the extraction elements such that electrons passing between any pair of the extraction elements will pass between a corresponding pair of focusing elements, wherein the focusing elements are spaced at equal intervals relative to the extraction elements (Gravelle et al. - column 2, lines 59+). It is noted that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone. See MPEP 2114. In this case, it should be recognized that the wherein clause is functional in nature and does not distinguish structurally the instant claim over the prior art. See MPEP 2114 and 2111.04.

28. With respect to claims 19 and 20, Brettschneider as modified by Gravelle et al. discloses the focusing elements are arranged to be connected to an electric potential which is positive with respect to the electron emitter, wherein the focusing elements are arranged to be connected to an electric potential which is negative with respect to the extraction elements (Gravelle et al. - column 2, lines 59+).

29. With respect to claim 21, Brettschneider as modified by Gravelle et al. discloses the controller is arranged to control the potential applied to the focusing elements in order to control focusing of the beams of electrons (Gravelle et al. - column 2, lines 59+).

30. With respect to claim 22, Brettschneider as modified by Gravelle et al. do not disclose the focusing elements comprise wires. However, wire focusing elements are known to those of ordinary skill in the art, and it would have been obvious to one of

ordinary skill in the art at the time the invention was made to modify Brettschneider /Gravelle et al. to have wire focusing elements, as these would produce the same results.

31. With respect to claims 32 and 33, Brettschneider as modified by Gravelle et al. disclose the focusing elements (Gravelle et al. - 23) are held at the same potential as the extraction elements (Brettschneider - 32), wherein each focusing element is spaced at a distance between and in front of each adjacent pair of electron emitters (31).

32. Claims 54-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brettschneider (USPN 5,259,014) as applied to claims 1 and 29 above, and further in view of Jones et al. (USPN 5,144,191).

33. With respect to claim 54, Brettschneider does not disclose the electron emitter comprise emitter pads supported on an insulating emitter block. Jones et al. disclose electron emitter comprise emitter pads (56 & 58 & 60) supported on an insulating emitter block (48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the electron emitter of Brettschneider with emitter pads supported on an insulating emitter block, as taught by Jones et al., as this would be a choice of design because these would perform the same function as the electron emitter taught by Brettschneider.

34. With respect to claim 55, Jones et al. disclose a layer of conductive material formed on the insulating block to provide electrical connection to the emitter pads (column 8, lines 32+).

35. With respect to claim 56, Jones et al. disclose the emitter pads are applied onto the layers of conductive material (column 8, lines 32+).

36. With respect to claims 57 and 58, Jones et al. disclose a heating element adjacent to the emitter block, wherein the heating element comprises a block of insulating material with a layer of conductive material applied to it forming a heating element (column 8, lines 32+).

37. With respect to claim 59, Jones et al. disclose a connecting element providing electrical connections for each of the emitter pads and flexible connecting elements providing electrical connections between the connecting element and the emitter block (column 8, lines 32).

38. With respect to claim 60, Jones et al. do not specifically disclose the connecting elements are arranged to accommodate relative movement of the connecting element and the emitter pad caused by thermal expansion. However, Jones et al. are capable of this. It is noted that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone. See MPEP 2114. In this case, it should be recognized that the wherein clause is functional in nature and does not distinguish structurally the instant claim over the prior art. See MPEP 2114 and 2111.04.

Response to Arguments

39. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

40. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jurie Yun whose telephone number is 571 272-2497. The examiner can normally be reached on Monday-Friday 8:30-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jurie Yun/
Primary Examiner, Art Unit 2882

June 29, 2008